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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/136,680	08/19/1998	CHRISTOPHE J. CHEVALLIER	703.032US1	2027
7590	08/12/2004		EXAMINER	
RUSSELL D SLIFER SCHWEGMAN LUNDBERG WOESSNER & KLUTH P O BOX 2938 MINNEAPOLIS, MN 55402			NGUYEN, LUONG TRUNG	
			ART UNIT	PAPER NUMBER
			2612	17
			DATE MAILED: 08/12/2004	

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/136,680	CHEVALLIER, CHRISTOPHE J.
	<b>Examiner</b>	<b>Art Unit</b>
	LUONG T NGUYEN	2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 24 May 2004.
- 2a) This action is **FINAL**.                                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 1-14, 19-26, 29 and 30 is/are allowed.
- 6) Claim(s) 15-18, 27 and 28 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date: _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date: _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 15-18, 27-28 filed on 5/24/2004 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 15-18, 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt (US 6,278,481) in view of Zhou et al. (US 5,909,026).

Regarding claim 15, Schmidt discloses a digital camera comprising a single integrated circuit (a single integrated circuit, column 5, lines 15-21); a CMOS imager (CMOS imager 505, figure 5, column 10, lines 26-39); a microcontroller (microcontroller 510, figure 5, column 10, lines 40-48); a non-volatile memory unit (buffer SRAM 525, figure 5, column 10, lines 40-48).

Although Schmidt discloses the photocard can be placed on a single integrated circuit, and the device fabricated using a CMOS process allows both processing devices and light sensing devices to be fabricated on a single chip (a single integrated circuit, figure 5, column 5, lines 10-21), Schmidt fails to specifically disclose a patterned conductive layer electrically interconnecting areas of the single integrated circuit, the patterned conductive layer including: a

level of protective material fabricated over the array of non-volatile memory unit for blocking the light received by the CMOS image sensor.

However, Zhou et al. teaches a patterned conductive layer electrically interconnecting areas of the single integrated circuit (i.e., note that a metal is used for light shield in the frame memory array, metal is a good conductor of electricity, column 7, lines 14-18), and a level of protective material fabricated over the array of non-volatile memory unit for blocking the light received by the CMOS image sensor (i.e., note that a metal is used for light shield in the frame memory array, column 7, lines 14-18). It would have been obvious to use this metal layer as a conductor (patterned conductive layer) for connecting the CMOS imager and other circuits on the substrate. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Schmidt by the teaching of Zhou et al. in order to prevent incident light from contacting to the charge stored in the memory. This makes the deterioration of image quality due to smear and dark current is eliminated. Therefore the image quality is increased. Further, the cost and size of the camera are reduced.

Regarding claim 16, Schmidt discloses the non-volatile memory unit receives and stores the image (buffer SRAM 525 receives image from CMOS imager 505 and stores image, figure 5, column 10, lines 40-48).

Regarding claim 17, Schmidt and Zhou et al. fail to specifically disclose wherein the level of protective material is a layer of metal fabricated as an interconnect for electrically connecting the CMOS image sensor and other circuits on the substrate. However, Zhou et al.

disclose protective material is a layer of metal (column 7, lines 14-19). Metal is a good conductor of electricity. Therefore, it would have been obvious to use this metal layer as a conductor for connecting the CMOS imager and other circuits on the substrate in order to reduce cost and size of the camera.

Regarding claim 18, Schmidt discloses a digital signal processor (microcontroller 510, figure 5, column 10, lines 40-48).

As for claims 27-28, all the limitations are contained in claim 15 and 17. Therefore, see Examiner's comments regarding claims 15 and 17.

***Allowable Subject Matter***

4. Claims 1-14, 19-26, 29-30 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 1, 8, 19, the prior art of the record fails to show or fairly suggest an image sensor comprising a patterned conductive layer electrically interconnecting areas of the monolithic *other than* the array of non-volatile memory cells, the patterned conductive layer including an unpatterned level of protective material fabricated over the array of non-volatile memory cells for blocking the light received by the CMOS image sensor so that the trapped charged is not erased from exposure to the light.

Claims 2-7, 29-30 are allowable for the reason given respect to claim 1.

Claims 9-14 are allowable for the reason given respect to claim 8.

Claims 20-26 are allowable for the reason given respect to claim 19.

***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

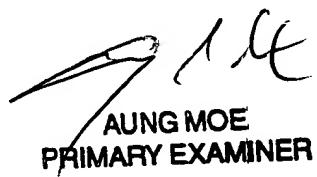
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUONG T NGUYEN whose telephone number is (703) 308-9297. The examiner can normally be reached on 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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8/9/04



AUNG MOE  
PRIMARY EXAMINER